METHOD AND APPARATUS FOR PRODUCING DIRECTIONALLY SOLIDIFIED CASTINGS

ABSTRACT OF THE DISCLOSURE

The present invention relates to an apparatus for metal casting and can be used in producing castings with directional and single crystal structure. The apparatus comprises a vacuum chamber inside which there is disposed an induction melting furnace, a mold preheating furnace with a ceramic mold, and a water-cooled tank being shaped as a truncated cone having a bottom portion and an upper portion which is opened towards a heating zone. The heating zone and the cooling zone are separated by a baffle articulating in a horizontal plane and consisting of segments or sectors. The apparatus allows the production of high quality castings having the directional and single crystal structure including the large sized castings by both the method of radiation cooling and the method of liquid metal cooling. Said invention gives the possibility to use successively the disclosed apparatus as a mold catch basin in the event of mold breakage and to increase the reliability and economic profitability of the apparatus' performance.